DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

National Institutes of Health
Bethesda, Maryland 20892

Bldg. 7, Rm. 100
(301) 496-4205
FAX: (301) 496-8312

December 19, 1990

Dr. Barbara Rosenberg
Division of Natural Sciences
735 Anderson Hill Road
State University of NY
Purchase, NY 10577-1400

Dear Dr. Rosenberg,

There are many useful proposals in the FAS document of October 1990 but their credibility is weakened by careless restrictions on mainstream biomedical research. The whole system will collapse if reporting is cumbersome and hard to justify.

Specific comments:

Article IA - The phrase "altered properties that might enhance their usefulness as weapons"...is extremely vague because who can know with certainty beforehand what might increase stability, transmissibility, virulence or any other property that facilitates the weaponization of a biological agent or toxin. It follows that the prohibition in 1A could embrace any alteration. Such a flat prohibition could interfere with important medical advances such as hyperexpression of a toxin for the purpose of elucidating its mechanism of virulence or for production of a toxoid to be used for immunoprophylaxis. It is our responsibility as scientists to assure that the benefits of such research are realized, while at the same time precluding as effectively as possible the application of this knowledge to weapons development. The latter can best be achieved by requiring that (i) all military research on infectious agents and toxins be conducted openly, and (ii) any research that has as its objective the enhancement of virulence, stability and/or transmissibility of an infectious agent be performed under stringent regulation and complete disclosure and only following the agreement of regulatory authorities, national and perhaps international, that the prospective human benefits greatly exceed any reasonable estimate of the risks. The framework for such oversight already exists in the United States in the form of "recombinant DNA regulation" and is advocated globally in IV-C.

The phrase "is not justified under BWC for any military purpose, including protection against possible hostile use"...can be interpreted in several ways and is thus ambiguous. Some individuals do not distinguish between vaccines that are developed for prevention of disease caused by a biological agent or toxin capable of being used as a

military weapon and the potential weapon itself. These individuals, whom I regard as misguided, lump an agent or toxin and its vaccine together and consider both to be biological weapons. In their view, the preparation of an effective vaccine is considered to be integral step, or at least an important contributory factor in the successful development of a biological weapon and hence must be prohibited. This rigid, one-sided view of immunoprophylaxis against agents or toxins that have military potential denies the benefits of disease prevention to individuals at risk of naturally acquired infection or attack by biological weapons. Article 1A as now written would be interpreted by these individuals as directly prohibiting the use of contemporary techniques of molecular biology to develop more effective and safer vaccines against agents and toxins that are potential biological weapons, but which also continue to be important causes of disease in civilian populations worldwide. In most instances, the development of such needed vaccines would include the construction of recombinants that express one or more of the protective antigens of the potential weapons agent. These recombinants would qualify as creations with altered properties under Article 1A and would be viewed by the aforementioned individuals as subject to prohibition without regard to whether alteration conferred beneficial (i.e., prophylactic) or deterimental properties.

We encounter a duality in vaccine development similar to that described above for research on pathogenic organisms or toxins. Development of vaccines for pathogenic agents or toxins can create a dangerous situation that might facilitate the use of these agents or toxins as weapons. However, the same vaccines offer considerable benefits to our global society. Again, we must realize the benefits, while precluding the dangers. This can be accomplished most effectively by (i) conducting research on vaccines for potential weapons agents openly and under conditions of regulation that now obtain for all vaccines and (ii) disclosing in detail and at regular intervals the usage of these vaccines and the populations immunized.

Article IIIA. "relevant to permitted activities" is not well defined even if it was used in other documents. Any research that advances our understanding of diseases or prophylaxis is "relevant" to defense . Non-compliant states (under Geneva protocol and BWC) should be added to non-signatories. Whether all medical research collaboration with such states is proscribed should be clarified. Would the prohibition apply to citizens and corporations as well as to States Parties (governments)?

IV. A. Domestic Law.

Oddly enough, the U.S. law is not in full compliance. Perhaps, this is because the BWC omits "use" or perhaps because this was already forbidden under the Geneva Protocol. The Kohl Bill likewise omits use and is therefore a poor prototype.

Page 7, Article V. D. - Same problem as IIIA. What does "jurisdiction or control" mean? Does it mean any NIH grant?

"Permitted activity" is probably intended to mean suspect activity that is justified because it is for defense against hostile biological attack. But almost all such research

could also be justified as defense against existing disease or new forms of disease that might evolve naturally. So, "permitted research" is either meaningless or all-embracing. Such an ambiguity is mischievous and could be used to persecute legitimate civilian research. So we need a better way to set the bounds of "forbidden" than by referring to what is "permitted" under another treaty.

Page 7, V. D. should read that "all infectious disease research should be disclosed if it is operated or contracted by the military establishment." It should also be disclosed by all other individuals or institutions, unless they have an established Internal Review Board (IRB) procedure and are subject to regulation by the national health and environmental safety authorities. Most commercial research is so regulated, and unless it was under military contract would not have to be reported via the national authority. Certain egregiously suspect research, e.g. with variola, or with a very limited number of very high risk agents should also be reportable. This also applies to a larger group of projects if they involve larger levels of cultivation than are customary in biomedical research.

Page 9. V. B - to plant pathogens add other forms of pest control, such as myxomatosis virus which has been used to control rabbits in Australia.

Page 10 V. C. - Add pedagogic to diagnostic and therapeutic - e.g., training of medical and graduate students.

Appendix A, p. 1 - list of controlled agents:

A. A1 and A.A2- "possessed in any quantity." This list is probably borrowed from the history of weaponized agents, regardless of their plausibility. The toxins should have a quantitative threshold. It is difficult to understand why the designated fungi are listed as examples and not others. Puccinia is of very wide natural occurrence. So is Brucella.

A. 2 - should set a quantitative limit for declaration, perhaps another higher one for prohibition.

Appendix A - page 2

Inclusion of Vibrio and Shigella and the plant pathogens, for example, as requiring declaration taxes the credibility of the proposal. During the 1st 3 quarters of 1990, there were 200 papers published with "cholera" in their title; 62 with Brucella; 65 Shigella; 43 tetrodotoxin, 48 Ustilago + Puccinia, almost all from medically or agriculturally beneficent work. Formally reporting all such work just dilutes the possibility of real surveillance. It means more administratively trivial red tape and will generate many pseudo-infractions that lead to domestic as well as international recriminations devoid of content. If there is to be formal reporting on such agents, there should be an exemption for investigators who have published their work on these agents in generally available books and journals during the previous 3 years. That will identify

almost all of the mainstream work in the world, including commercial laboratories, and this time interval will allow registration of intellectual property. There might be a case for declaring research that has not been ventilated in that way, however, I hate to think that anybody who has grown 10 ml. of bacteria from a stool culture with an investigative purpose in mind will have to report to an international agency. Responsible scientists should be eager to discuss their research or to respond to questions, if any, to explain reasonable delays in publication related to protecting proprietary interests.

A very limited number of agents should by common agreement be declarable at any level. Perhaps this should include risk group 4 subject to negotiated amendations, and with an exemption for recently published work as indicated above.

Appendix A, page 3 - B B1 - These toxins are commercially available in much larger quantities. Therefore, raise the threshold substantially.

General comment: Infectious disease research scientists are essentially not represented in the core group, except for Dr. Alexis Shelokov, who shares some of my concerns about the final draft. Incidentally, the contents of the final draft were shared with a delegation of Soviet scientists who are members of the Soviet Academy of Sciences or Soviet Academy of Medical Sciences. These scientists also voiced many of the concerns enumerated above.

Sincerely,

Robert Chanock

Robert M. Chanock, M.D.
Chief
Laboratory of Infectious Diseases
National Institute of Allergy
and Infectious Diseases
National Institutes of Health

cc: Dr. Robert Weinberg